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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/021,371	10/30/2001	Yiqiang Li	2232P	2555

7590 05/07/2003

SAWYER LAW GROUP LLP
P.O. Box 51418
Palo Alto, CA 94303

EXAMINER

KNAUSS, SCOTT A

ART UNIT	PAPER NUMBER
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2874

DATE MAILED: 05/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/021,371	LI ET AL.	
	Examiner	Art Unit	
	Scott A Knauss	2874	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☒ Claim(s) 16 and 17 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____. | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The amendment filed 4/8/03 has been entered and considered by the examiner. The previous rejection is withdrawn, and the following new rejection is applied.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 2002/0071630 (Su et al) in view of US 5,917,626 (Lee).

Regarding claims 1 and 9, Su discloses a dense wavelength division multiplexer (see abstract) comprising:

A dual fiber collimator #40 having fibers #41 and #42

A filter holder #22 having an aperture therein

A filter #10 disposed between the dual fiber collimator and the filter holder, the filter having first and second opposing surfaces, the filter being affixed to the filter holder via a second surface (see paragraph [0020], lines 14-20)

Su also does not disclose the use of any epoxy on a first surface, since the filter is pasted via a second surface to carry surface #22, thus the first surface can be considered to be free of epoxy, since it is not disclosed by Su.

Although Su does not explicitly state that collimator #40 includes a lens and a capillary for holding a pair of fibers, the examiner notes that Su cites several U.S. patents in paragraph [0004], and describes a collimator as consisting of a ferrule (also known as a capillary) holding two optical fibers and also having a GRIN lens, and it would have been obvious to one of ordinary skill in the art to use such a collimator as the collimator #40 holding two optical fibers in order to collimate light to and from the two fibers.

Su also fails to disclose a filter having a first surface being covered with a filter coating.

Nevertheless, such filters are well known in the art. Lee, in particular, discloses in fig. 4a a similar configuration wherein a filter has a filtering coating #421 which is coated onto a surface #420 and faces a dual fiber collimator in order to filter a range of wavelengths such that some are transmitted and others are reflected (see fig. 4a)

Therefore it would have been obvious to one of ordinary skill in the art to incorporate the filter comprising the coated filter layer as taught by Lee into the multiplexer of Su with its filter coating on the side facing the dual collimator in order

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selectively filter wavelengths and thus perform multiplexing. In such a configuration, neither the filtering coating nor the first surface of the filter would be exposed to epoxy, since the epoxy would be used to cement the back surface of substrate #420 to the carry surface of Su, and thus, the first surface and filtering coating could be considered to be free of epoxy.

Regarding claims 2 and 10, Su, as modified, discloses the use of GRIN lenses.

Regarding claims 3,13 and 15, Su discloses the use of an epoxy to attach the filter to the filter holder (see paragraph [0009], lines 9 and 10) but does not explicitly specify a high temperature epoxy.

Nevertheless, the use of such epoxies is known in the art, and it is desirable to use such epoxies as opposed to UV curing epoxies since the high temperature epoxies produce an attachment of higher strength which is not temperature dependent. Therefore it would have been obvious to one of ordinary skill in the art to use such epoxies to attach the filter to the filter holder to provide such an attachment.

Regarding claims 4 and 11, Su, as modified, fails to explicitly specify the use of a tube for holding and aligning the lens and the capillary. Nevertheless, such tubes are well known in art in dual fiber collimators, and it would have been obvious to one of ordinary skill in the art to incorporate such a tube in the dual fiber collimator disclosed by Su to facilitate alignment between the lens and the capillary.

Regarding claims 5 and 12, Su discloses a mechanism body (holder) (#30) which may have any shape, which serves to hold the collimator, holder and filter. Su does not, however, specify the material from which it is made, specifically, whether it is metal.

Nevertheless, metal holders are well known in the art to hold, protect and align fiber collimators and lens, and thus it would have been obvious to one of ordinary skill in the art to use a metal holder as the mechanism body of Su.

Regarding claim 6, Su, as modified, further discloses attaching the filter holder to a metal mechanism body using epoxy (paragraph [0022] lines 14-15), but does not specify soldering the filter holder to the metal holder.

Nevertheless, such methods of attachment are well known in the art, and are desirable to form high strength permanent connections to metal elements. Therefore it would have been obvious to one of ordinary skill in the art to modify the mechanism of Su to use solder to attach the filter holder to a metal body.

Regarding claims 7 and 14, Su discloses a single fiber collimator #50 optically coupled to filter #10, the filter holder disposed between the filter and single fiber collimator holding an output fiber #51.

Regarding claim 8, Su fails to disclose a anti-reflective coating on the second surface of the filter.

Nevertheless, such coating are well known in the art in such devices, and are desirable in order to prevent light from being back-reflected into fibers #41 and #42 of Su, thus enhancing the multiplexing capability of the device. Therefore it would have been obvious to one of ordinary skill in the art to provide such a coating on the second surface of the filter in order to provide a more effective multiplexing device with better filtering.

Allowable Subject Matter

5. Claims 16 and 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claims 16 and 17, the prior art fails to teach or suggest a multiplexer as set forth in claims 1 and 9, having a dual fiber collimator and a filter holder with an aperture therein, the filter having first and second opposing surfaces, with a filter coating on the first surface, the first surface and filter coating being free of epoxy; such that the filter is in contact with the filter holder *only* along the *second* surface of the filter. Su specifically teaches the use of a tubular section #21,#221 which holds the filter #10 in place, as do the other prior art references previously cited by the examiner.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

JP 2002-72009 (Tateiwa) discloses a particularly relevant optical filtering device which lacks an early enough publication date to be considered prior art.

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott A Knauss whose telephone number is (703) 305-5043. The examiner can normally be reached on 9-6 Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (703) 308 - 4819. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0530.

Scott A. Knauss

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sak
April 29, 2003


HEMANG SANGHAVI
PRIMARY EXAMINER